

5th Quarterly Report

Date of Report: *December 31,, 2016*

Contract Number: DTPH5615T00014

Prepared for: *DOT PHMSA*

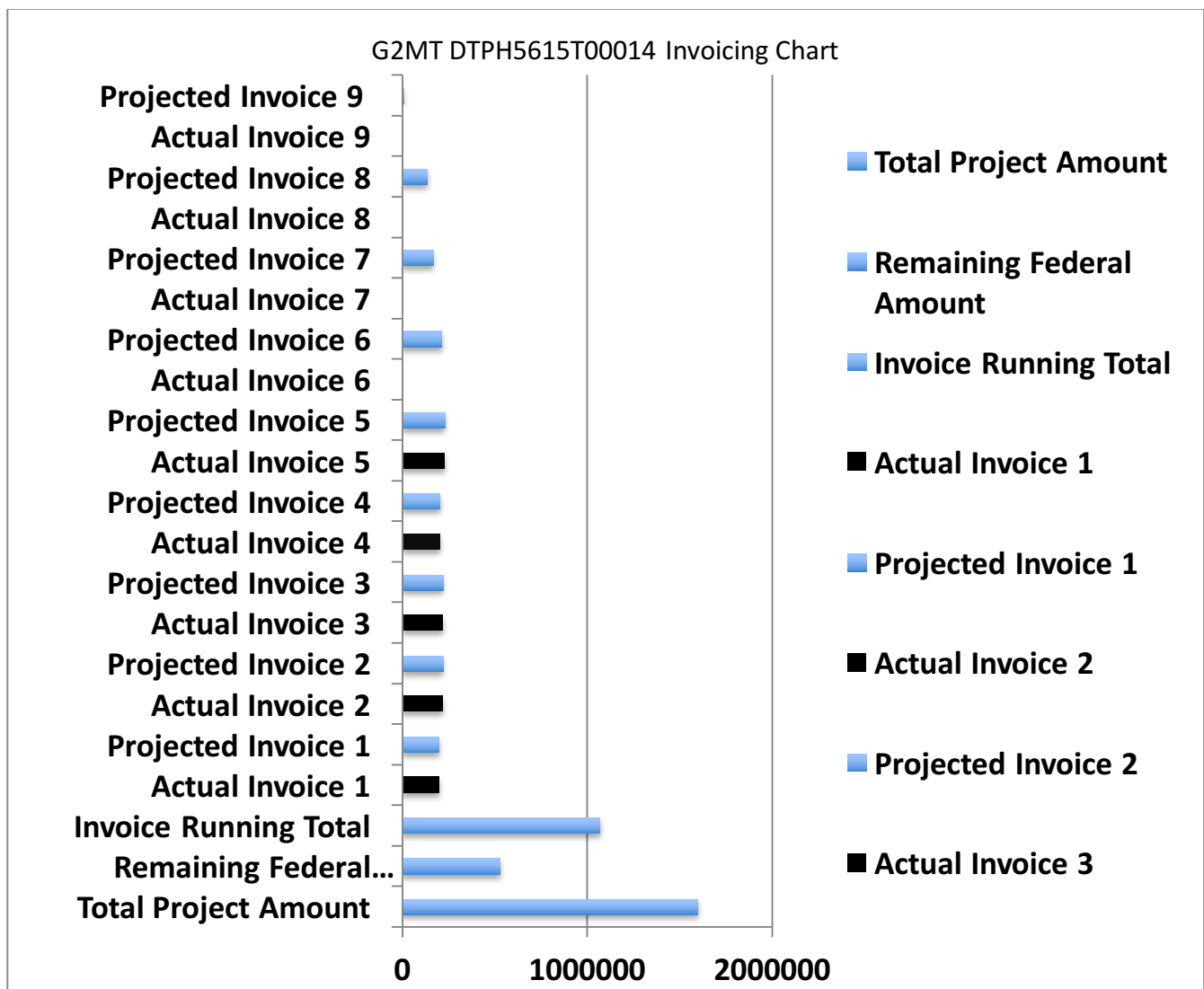
Project Title: “Use of Electromagnetic Sensors to Quantify Strength and Toughness in Steel Pipelines In and Out of Service”

Prepared by: *Generation 2 Materials Technology LLC*

Contact Information: Angelique N. Lasseigne, Phone: 303-304-9785, Email: angelique@g2mt.com

For quarterly period ending: *December 31, 2016*

Funds and Work Completed During this Quarterly Period



(a) Technical Status

The work performed during this third quarterly reporting period included Items 30 through 40 to perform Tasks 3, 4, 5, 8, 9, 10, 11, 12, and 26 in Quarter 5. The tasks performed included: (1) Fully characterize all vintage pipeline specimens that have not already undergone vigorous characterization, (2) Compare and analyze electromagnetic results and pipe metallurgical characterization results and determine the relationships between microstructure and mechanical properties, (3) Perform calibrations to account for expected variables, (4) Develop the calibration code to account for variables from Task 7, (5) Perform calibrations to account for variations in lift-off, (6) Revise algorithm to account for lift-off variations, (7) Work with project partners to develop optimal data presentation format, (8) Begin processing and transferring data, (9) Perform laboratory and field measurements, and (10) Provide the 5th quarterly report.

(b) Business Status

During this reporting period, G2MT was able to finish the analysis of a large assortment of new and vintage pipe, perform calibrations on the analyzed pipes, . The other tasks (3 through 15) for the fifth quarter will continue until the 18th or 21st month periods, which includes a large amount of laboratory and field testing, analyzing all of the collected electromagnetic data to establish the relationships between the steel properties and the electromagnetic data, data processing, and

field verification. G2MT is working with the project collaborators to optimize the format and type of data for use in integrity management.

During this fifth quarterly reporting period, G2MT has accomplished the fifth group of interim milestones and the quarterly (interim) reporting is on track according to the budgeted expenditures. The total amount of cost-sharing for this period was \$1,340,000. The proposed budgeting for the fifth interim periods was \$229,200 and the actual expenditures for each period have equaled the budgeted amounts.

(c) Payable Milestones

The invoice associated with this quarter includes the budgeted \$229,200 payable for the 5th interim report period. The remaining funds following payment of the 5th invoice will be sufficient to complete the proposed testing and demonstration period on or ahead of the schedule described in the project proposal.